What is a Truth-Value Gap?*

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Truth-value gaps are generally taken to be a well-understood phenomenon. From a formal perspective this is correct: gaps are by stipulation truth-values that block inferences like falsehood while having more infectious projection behavior. But from a foundational perspective gaps are poorly understood. What is the point of distinguishing among ways of being untrue? How do gaps fit into, or arise out of, our theories of assertion or the nature of content? Difficulties in supplying answers to such questions have given rise to powerful challenges that the very notion of a truth-value gap is conceptually confused.

My goal in this paper, after strengthening a challenge of this kind, is to offer one account of truth-value gaps that begins to address some of the more pressing foundational questions about them. The discussion reveals that we may need special resources in our theories of assertion to posit gaps, that gaps may be unusable in characterizing the structure of mental states, and that gaps may have heterogeneous linguistic sources that result in equally heterogeneous projective and inferential behavior.

1 The Foundational Challenge

Frameworks incorporating truth-value gaps have been applied to indicative conditionals with false antecedents, semantic anomaly, non-referring definites and strong presupposition failures more generally, non-referring names, vague expressions, and liar-like semantic paradox.[1] In these contexts gaps are supposed

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[1]Broadly trivalent theories of indicative conditionals are explored in de Finetti (1935), Belnap (1970), and discussed in von Fintel (2007) and Rothschild (2014). For discussions of the defects of anomaly, see Ryle (1949), Routley (1966, 1969), Thomason (1972), Lappin (1981), and Shaw (forthcoming). The question of how to treat non-referring definites, and empty names, goes back to Frege (1892) and Strawson (1950, 1952, 1954). For gappy treatments of vagueness see, e.g., Fine (1975) or Soames (1999, 2003). And for a classic gappy treatment of liar-like paradox see Kripke (1975). In many of these cases, the authors cited favor treatments using very strong forms of defect such as meaninglessness, or failure to express a proposition in context. In other cases, treatments allow for successful, or partially successful, assertions that exhibit defective behavior only in some circumstances, or at some possible worlds. Sometimes these forms of defect are conflated. The existence of the former, strongest forms of defect is in some ways easier to defend. As will become clearer through discussion, I mean to defend the

to explain utterance infelicities, consultants' hesitant truth-value judgments (or strong judgments of no conventional truth-value), aberrant compositional behavior, or inferential abnormalities.

One might wonder if there is really one phenomenon recurring in the constructions just mentioned, and whether one technical notion can fulfill the very different compositional, inferential, and assertoric roles set for it. But let's set these worries aside for now because there is a prior, deeper foundational worry about truth-value gaps which has gone more or less unanswered since it was forcefully pressed in Dummett (1978).[2]

Dummett elaborates his foundational worry using an analogy with competitive games. If a theorist of such games merely divided final states of play under three headings—*win*, *lose*, and *draw*—the utility of that classification would presuppose concepts integral to competitive play like winning and losing, and the classification on its own would be unhelpful in explicating them. Relabeling the states of play the *A*, *B*, and *C-states*, makes clearer what important information is missing: prototypically players aim at the *A-states*. If instead the *B* or *C-states* played that role, we would have a very different class of competitive games on our hands. And if no states served that function, we wouldn't have a classification pertinent to competitive games at all. Likewise a classification of statements into the true and false contributes too little to supply a full understanding of truth-values, and instead largely presupposes or awaits that understanding.

One point of the analogy is to remind us that no adequate explanation of truth, falsehood, or any other truth-value (and ultimately no theory making use of such values) can forego an explanation of the significance of attributing them. Dummett harps on this point because he thinks that simply by reflecting on the purpose of attributing truth-values, we can recognize that purpose forces a binary structure on their allotment. If correct, this would mean that gap theorists positing a third truth-value are guilty of manipulating an empty formalism.

How do these constraints arise? Dummett claims the chief purpose of assigning truth-values is to mark a role in the determination of assertoric content. Moreover, without getting into the details of such an account, Dummett thinks we can see the basic function of assertion leaves no room for the existence of truth-value gaps:

> A statement, so long as it is not ambiguous or vague, divides all possible states of affairs into just *two* classes. For a given state

existence of very weak forms of semantic aberration which are present 'world-by-world', since these are the hardest to defend from foundational challenges, and yet are arguably best suited to treat all the cases just alluded to. Cf. the discussion of 'substantial gaps' in Glanzberg (2003).

[2] I'll follow one strand of Dummett's exposition here relatively closely, provisionally adopting Dummett's use of "statement" to pick out bearers of truth. Dummett's argument against the intelligibility of gaps has met with some approval, and relatively little direct resistance. See, for example, Glanzberg (2003) and Priest (2006) both of whom refine and endorse Dummett's attack. See also Suszko (1977), which capitalizes on what is essentially Dummett's point to formalize a strategy for obviating gaps.

> of affairs, either the statement is used in such a way that a man who asserted it but envisaged that state of affairs as a possibility would be held to have spoken misleadingly, or the assertion of the statement would not be taken as expressing the speaker's exclusion of that possibility. If a state of affairs of the first kind obtains, the statement is false; if all actual states of affairs are of the second kind, it is true. It is thus *prima facie* senseless to say of any statement that in such-and-such a state of affairs it would be neither true nor false.[3]

The idea seems to be that truth-values record when an assertoric act conventionally leaves open, or rules out, various possibilities. Modifying this idea provisionally to suit the idiom of propositions and possible worlds:

(t_d) A's statement that p is true-at-a-world w if it does not conventionally express A's exclusion of w as a possibility.

(f_d) A's statement that p is false-at-a-world w if it conventionally expresses A's exclusion of w as a possibility.

If these conditions governed the purpose of allotting truth-values, they would yield a simple argument for the exhaustiveness of truth and falsity conditions in classifying assertoric content. After all, the requirement on falsity is just the negation of the requirement for truth. Exhaustivity would require excluded middle to apply to the requirement for falsity-at-a-world, but this is not implausible. And even if excluded middle were to fail, this characterization already does substantial work ruling out several phenomena alleged to require gappy treatment. For example, statements with non-referring names on Dummett's criteria seem false: someone who asserted "Jones is in that room", but "envisaged that [Jones didn't exist] as a possibility would be held to have spoken misleadingly".[4] And indicative conditionals with false antecedents are clearly true: speakers asserting "if p, then q" don't thereby rule out that p is false.

For now, I want to set aside the question of whether (t_d) and (f_d) are faithful to Dummett, and even the question of whether the conditions are good ones. This is because the brunt of Dummett's argument doesn't turn on the precise formulations of such conditions. Rather, the crux of his argument is this: if we use truth-value classifications to track a single kind of assertoric status or effect, then those classifications will be bipartite. Dummett thinks that reflection on the point of assertion reveals that the philosophically interesting uses of truth-values track a single kind of assertoric effect. As such, moving beyond a bipartite classification of assertoric effects is theoretically unmotivated.

If the goals or consequences of an act are varied, trivalent classifications regain their utility. Dummett thinks that this occurs for conditional bets, like "If John comes, I bet it will be without Sally." Tracking the effects of conditional bets requires a tripartite scheme because they can have three distinct

[3] Dummett (1978) p.9.

[4] Names used in fiction create complications—I won't discuss them here.

outcomes: payment, receipt of payment, and no exchange. By contrast: "Statements are... not like bets; the making of a statement has, as it were, only one kind of consequence."[5] Regardless of what this consequence is, its uniqueness precludes any significant tripartite classification of assertoric effects.

Dummett's argument, though simple, is incredibly powerful. To appreciate its force, we can note how it threatens to block all arguments in favor of gaps that exploit projection behavior. Many have held that we need truth-value gaps to explain the embedding behavior of sentences under negation. Negation seems to transform the uncontroversially true into the uncontroversially false, and vice versa. But some statements seem to exhibit a kind of imperfection that is preserved under negation—those involving non-referring names, or non-referring descriptions, for example. If truth-values are used to track compositional effects in assertion, it is sometimes claimed, we will need gaps in addition to truth and falsity to model a third way in which whole sentences interact with negation.

Dummett notes that, provided his argument is sound, even if we do need some third status for compositional purposes we will end up assimilating that third status into a species of truth or falsehood at the level of assertoric content.[6] To appreciate the point, consider an artificial language in which we stipulate the existence of a species of falsehood with aberrant projective behavior. Our fictitious language contains the word "squeen", with truth-values assigned to its uses as follows, with G symbolizing "is green" and S "is square".

	$Ga \wedge Sa$	$Ga \wedge \neg Sa$	$\neg Ga \wedge Sa$	$\neg Ga \wedge \neg Sa$
a is squeen	t	t	f^*	f

Let's stipulate that whether an utterance is assigned t or the values in $\{f, f^*\}$ is tracking *effects in assertion*. So, by stipulation, there is no difference in assertoric content between saying "a is squeen" and "a is green". But the division between f and f^* does mark a difference in interaction with a negation-like operator, pronounced "neg", as follows:

	$Ga \wedge Sa$	$Ga \wedge \neg Sa$	$\neg Ga \wedge Sa$	$\neg Ga \wedge \neg Sa$
a is neg squeen	f	f	f^*	t

So, by stipulation, there is no difference in assertoric content between saying "a is neg squeen" and "a is neither green nor square".

Whether we use words like "neg" and "squeen" is clearly an empirical question for compositional semanticists. If we do, we will likely need to go beyond a bipartite assignment of extensions to sentences for compositional purposes. But this by itself won't settle any questions about assertoric content. In the foregoing example, only bipartite classifications are needed to model the effects

[5] Dummett (1978) p.12.

[6] Dummett's proposed separation of assertoric content from compositional semantic value (for Dummett: ingredient sense) is sympathetically echoed and developed by a number of other theorists including Lewis (1980), Stanley (1997), Ninan (2010), Rabern (2012), and Yalcin (forthcoming).

of assertions containing "squeen": every sentence containing that word is assertorically equivalent to a sentence having straightforwardly two-fold effects by stipulation.

The point of this somewhat fanciful example is this: Dummett's arguments, if correct, establish that complexity in the compositional behavior of whole sentences is irrelevant to the question of whether we posit interesting tripartite structure at the level of assertoric content. No matter how complex the embedding behavior we witness, once we consider the effects of a composite expression in assertion, every case must at bottom be like the "squeen" case. We might need four, eight, or infinitely many values in compositional semantics to explain various forms of embedding, but effects in assertion will always be a 'yes-no' matter.

Now in our hypothetical case we have two distinct classifications: a ternary one for compositional values, and a binary one for assertoric values. If the classifications come apart, which are the 'genuine' truth-values? Here our methods recommend tolerance of alternatives: use the words and corresponding classifications however you want, as long as you are clear about their use. But Dummett seems to think, and I am inclined to agree, that for the most part the existence of gaps will only do the work philosophers and linguists have historically demanded of them if they are needed to characterize assertoric and not merely compositional effects.

Consider a paradigmatic philosophical topic to which gaps are applied: the semantic paradoxes. If gaps only arise for compositional purposes, they are not obviously helpful in diagnosing paradox, or modeling the existence of borderline cases, since the problems in neither case stem purely from compositional concerns. Or consider a paradigmatic linguistic appeal to the existence of truth-value gaps: to explain speaker judgments of utterance infelicities. Again, if gaps only result in aberrant projection behavior, there is no special reason why an assertion of a sentence with such projective behavior should result in infelicity.

If Dummett is right that the most important truth-value classifications mark off roles in the determination of assertoric effects and there is, as Dummett puts it, just 'one kind of consequence' to an assertion', then it seems philosophically and linguistically interesting truth-value gaps can't exist, and nothing could count as evidence for or against them. This is because no sense can be made of the phenomenon that the evidence is alleged to bear upon.

2 Indeterminacies

Having sketched Dummett's argument, I'd now like to do two things. First, I'll strengthen the argument, adding to the *desiderata* placed on gap theories. Then in §§3–5 I'll develop resources that I think can overcome even the strengthened challenge.

Before proceeding, I need to make a methodological remark. I've so far followed Dummett's use of "statements" to label truth bearers. But the question what properly bears truth-values is controversial. For now, I want to provi-

sionally set this issue aside. We know from Dummett's argument that a key desideratum for the gap-theorist's tripartite scheme is that it be made relevant to assertoric and not merely compositional statuses. To this end, I'll provisionally attribute truth-values to utterances used in assertion, and talk of what is thereby tracked as an *assertoric effect* or *assertoric status*, these being equivalent blanket terms to cover something that happens due to the assertion or a status the assertion (or its object) has. Once we trace out how truth-value gaps could be relevant to assertion, we'll have occasion to revisit the issue of truth-bearers in §4.

The premises of Dummett's argument can be cast as follows.

(P_1) If the most significant allotments of truth-values track a single kind of assertoric effect that is always either determinately present or determinately not present, then tripartite classifications of truth-values are not theoretically grounded.

(P_2) The most significant allotments of truth-values track a single kind of assertoric effect that is always either determinately present or determinately not present.

(P_1) is an unexceptionable claim, though one whose importance is easy to overlook. In voicing it, Dummett is rightly reminding gap theorists that they owe us an account which ties the structure they impose on distributions of truth-values to aspects of the assertoric speech acts whose content those truth-values characterize.

(P_2) is more controversial, and will be the premise that the gap theorist must resist. She can't deny that truth-values model assertoric effects, in the broad sense I've described. This would threaten to rob gaps of some of their most important linguistic and philosophical applications. This leaves only two ways for the gap theorist to develop her view.

> *Indeterminacy*: Maintain that truth-values model a single assertoric effect that may not be determinately present or determinately absent.
>
> *Multiple Effects*: Maintain that truth-values model multiple, conceptually distinct assertoric effects.

Indeterminacy may seem the most natural route to accommodate gaps. Indeterminacy is commonly used as a gloss on the nature of gaps in logical and philosophical contexts: It is a customary interpretation of trivalent logical schemes, like the Strong Kleene and Supervaluational schemes. And it is habitually used in the interpretation of frameworks to treat paradox (especially, and obviously, those that appeal to determinacy operators).

What's more, indeterminacies of the relevant kind seem completely pervasive, owing to vagueness. *Any* effect seems like it can exhibit indeterminacies. I make a threatening face; this may have the effect of getting someone to run a mile, or it might lack that effect. But what if the surface they are running on is extremely bumpy? What speed must they maintain to have 'run' the distance?

Questions like these make it look as if there are cases where my words clearly had the effect in question, cases where they clearly did not, and intermediate cases which are hard to classify either way.

There seems to be no obstacle to applying this idea to assertoric effects. Suppose that assertions have some unique characteristic function—say, to rule possibilities out. Then we might not only need to track when an assertion conventionally rules some possibility out, or does not, but also intermediate cases where an assertion only indeterminately has the effect in question.

But appearances here are deceiving. Gap theorists should avoid appealing to *Indeterminacy* if at all possible.

Let me be clear: indeterminacies in assertoric effects probably exist and are worth modeling. But gaps should not be *identified* with them. The problem is that the indeterminacies are not present in the grand majority of cases that gap theorists do, and should, want to model.[7] This might seem surprising. Aren't gaps paradigmatically used in theories of vagueness? And don't vague uses of language involve the indeterminacies of which I've been speaking?

The answer to both of these questions is "yes". The problem is that what leads us to press them is the conflation of two distinct kinds of indeterminacies: indeterminacies in assertoric effect, and indeterminacies in *linguistic use*. Indeterminacies in linguistic use are cases where there aren't settled conventions that dictate whether a predicate or its negation apply to an object. Some simple and clear cases of vagueness may involve the latter kind of indeterminacy—indeterminacy in use—without the former indeterminacy in assertoric effects.

Imagine, for example, that we have as clear a case as possible of someone who is a borderline case of baldness—Chuck. Speakers are wholly, and uniformly, reluctant to talk about Chuck using the word "bald". They refuse to call him "bald". They refuse to call him "not bald". They insist that he's an intermediate case—dead center between being clearly bald and clearly not. They even insist that because of this "bald" is simply not the right word to talk about how things stand with Chuck. All of this, let's suppose, is common knowledge.

If this kind of case were to arise, it would be a manifestation of the vagueness of "bald", though perhaps an unusual and special manifestation of it. It would also be a phenomenon that gap theorists would be interested to capture. The problem is that there is no reason to think that calling Chuck bald has indeterminate *assertoric effects* (at least vis-a-vis the actual world). To see this, consider the suggestion I adapted from Dummett: that falsity-at-a-world w is used to model when a statement is used to conventionally rule w out. If we take this to be the sole effect that truth-values are used to track, then if someone were to assert "Chuck is bald", they would (determinately) not be performing an act which conventionally ruled out the actual world. Using Dummett's own words: is it the case that someone "who asserted ["Chuck is bald"] but envisaged... the [actual] state of affairs as a possibility would be held to have spoken misleadingly"? It seems so, by the very stipulations of the case. We stipulated that

[7] A corresponding point, that the indeterminacies of vagueness shouldn't be characterized purely in terms of gaps, is appreciated Fine (1975) p.267.

there was mutual acknowledgement that applying "bald" or "not bald" to Chuck (with his actual head of hair) was something not appropriate for classifying how things stand with him. Asserting "Chuck is bald" when you foresee that he may be among such cases is to speak misleadingly. So by Dummett's proposed classification, Chuck's case will not present us with a case of indeterminacy of assertoric effects.

The problem doesn't just arise from that particular choice of effect. Any clear way of classifying assertoric effects tends to face the same problem. For example, one might think that truth-values are tracking not what speakers are ruling out, but what speakers should aim at in producing their assertions. One might think, for example, that truth-at-a-world w tracks the kinds of assertions we should aim to produce were we to know w was actual. Again if this is the only effect we are tracking, assertions of "Chuck is bald" determinately lack this status with respect to the actual world, and so again will not produce truth-value gaps if we identify them with indeterminacies of the single proposed assertoric effect.

To be clear: I am not claiming that indeterminacies of assertoric effect should not be modeled with truth-value gaps. I am merely claiming that the converse doesn't hold: some gaps do not result from indeterminacies in a single assertoric effect, and so we cannot identify gaps with those indeterminacies. I am also not claiming that all instances of vagueness or indeterminate linguistic use involve determinate assertoric effects. Surely some vague uses of language will involve indeterminate effects. Chuck's case is a highly specialized instance of indeterminate use that is uniform and mutually recognized by speakers. But if we have any such case, intuitively to be modeled with gaps, then a treatment of gaps as indeterminate effects will overlook it.

I've just argued that even if we *only* wanted gaps to model vagueness, we should avoid *Indeterminacy*. But the problem here is more acute when we consider allegedly gappy constructions other than vague uses of language, which are hardly the only ones we would hope to salvage on the gap theorist's behalf. Worse difficulties arise for indicative conditionals with false antecedents, uses of non-referring names, strong forms of presupposition failure, liar-like paradoxes, and instances of semantic anomaly.

We already noted this point earlier: someone using an indicative conditional with a false antecedent is not making an assertion that conventionally rules out the worlds at which its antecedent is false. Nor (to try out our second proposed effect) should we be striving to produce indicative conditionals in circumstances which we know makes their antecedents false. Once we fix the single kind of effect truth-values will be used to track, and if we identify gaps with indeterminacy in that effect, the grand majority of cases gap theorists want to treat will not generate gaps. We can generally and quite easily classify them as clearly having, or lacking, the effect in question, world-by-world.

An appeal to *Indeterminacy* would result from a failure to appreciate this point, and would lean uncritically on special features of vague terms as a source of gaps. It should have been clear that this might be problematic for gap theorists, as the majority of cases to which gap theories have been applied can

arise in languages which are to all appearances completely precise. If we use gaps only to model indeterminacies in assertoric effects, all of these applications of gap theories have to go by the board.[8]

So: gap theories won't survive in any recognizable form if gaps are construed as indeterminacies of a single assertoric effect or status. That strikingly leaves gap theorists with only one option to meet Dummett's challenge: to proliferate assertoric effects, as per *Multiple Effects*, and show how their combinations give rise to gap-like behavior. To my knowledge, no gap theorist has considered thinking of gaps in these terms. Perhaps more surprising, though, is how natural and appealing a theory results from taking this option.

3 Amalgamating Assertoric Effects

Dummett claims that making a statement has a 'single kind of consequence'. But I think this is incorrect. I'm going to argue that there is a natural compound goal in the making of an assertion, and a corresponding amalgamation of two interacting effects. In special cases, we can pry these effects apart, uncovering a phenomenon for a third truth-value to represent. In this section I'll merely describe the tripartite classification I'm alluding to. I defer to §5 the important question of how this classification does the work gap-theorists need.

To develop my positive account, rather than engaging with Dummett's treatment of assertion, I prefer to draw on an attenuated version of a framework developed by Robert Stalnaker.[9] On this picture, an assertion is a kind of rational action which takes place against a shared background of information—information that all parties are commonly aware is being taken for granted for the purposes of conversation. In the paradigmatic case, conversational participants are engaged in inquiry about the actual world. The shared background of information in conversation is a measure of how far the participants are, collectively, in ascertaining what the actual world is like. The shared background thus determines a set of possibilities called the *context set*: the set of possible ways the world could be that are compatible with the information pooled so far. An assertion is a proposal to augment the shared pool of background information, by conveying information about the open possibilities through a conventional use of language. To have its characteristic effect, the assertion should conventionally do at least two things: partition the open possibilities, and induce a kind of 'polarity' on that partition. The polarity marks which side of the partition is claimed to be incompatible with the way the world actually

[8] A related problem with *Indeterminacy* is that even in the special cases in which it engages, it is in danger of making the attribution of "true" itself indeterminate, which threatens to make it impossible to report the presence of particular gaps. Gaps are intuitively statuses that are neither true nor false. But how could we say a case is gappy in this sense if is indeterminate whether "true" should be applied in it? Cf. Glanzberg (2003) p.157, n.9.

[9] See, e.g., Stalnaker (1978, 2002). I won't be defending this construal of assertion. Instead my goal is simply to provide gap theorists with at least one conception of assertion within which they can develop and apply their views.

is. The assertion is, at least in part, a proposal to rule those possibilities out.[10]

Already within this simplest outline of the framework, we can see that assertion prototypically involves a *transfer of information guided by actuality*. There are really two features here. First, assertion involves manipulating pieces of information, where I'm using "information" in a familiar Stalnakerian sense as 'that which rules out possibilities'. Second, assertion involves providing that information while being 'guided' by a specific target: the actual world.

I want to begin by noting that these two features are conceptually separable, and are integral components of assertion in this sense: stripping away either feature results in a speech act that is no longer recognizable as prototypical assertion.

There are, for example, speech acts whose correct use is guided by features of the actual world that nonetheless involve no exchanges of information at all, let alone information about actuality. Greetings and valedictions are good examples. Roughly, greetings like "hi!" or "hello!" are appropriate only when one newly encounters an addressee. To say "hello!" at the end of a conversation is to misuse it. But these greetings are not conventional ways of supplying information: to say "hello!" is not to assert the information that the speaker is here now, that she is now starting to talk, or even that the 'proper conditions' for greeting hold. This is arguably one of the reasons we cannot speak of greetings or valedictions as being true or false in any sense.

There are also speech acts that involve exchanges of information that aren't guided by actuality. Consider two screenwriters, joining efforts to come up with the set-up for their action movie script.

> *A*: The hero is an American, obviously. Her partner was murdered while they were on a mission in the Congo.
>
> *B*: And she's out for revenge.
>
> *A*: Right. Five years after the botched mission, she's approached by a mole within her organization.
>
> ...

Here information is being pooled. There is something very much like a Stalnakerian background of information: the 'story so far'. And the writers gradually add information to it, ruling out more and more worlds as they go. The choices of information to pool are obviously not guided by actuality nor, arguably, by features of any preconceived worlds. The writers are volunteering pieces of information, seeing how they strike them. Perhaps they weigh them against one

[10] It is worth stressing, as I just mentioned, that so far this view of assertion is an *attenuated* version of Stalnaker's own. It is compatible with my characterization that assertions sometimes, or always do more than partition possibilities, or sometimes fail to partition possibilities. They may, as Russellians and Fregeans might maintain, convey additional information about objects and properties, or modes of presentation thereof. And they may sometimes have effects that are disconnected from inquiry about actuality.

or more other standards connected with the information's utility in producing their script (artistic merit, profitability, and so on).

These speech acts are not assertions even though they bear important similarities to them. If we imagine a community where the *only* speech acts were like those made by the screen writers it is clear that such a community wouldn't be a community of asserters. We couldn't communicate with them, for example, even if they spoke our native tongue.[11]

Providing information and being guided by actuality are also helpfully thought of as prototypical goals of asserters. On the one hand, I am not doing what is prototypically involved in cooperative assertion if I am merely aiming to speak accurately. If that were the only point of assertion, we might all go around telling each other repeatedly that green things are green. One of our goals in asserting is to speak in some appropriate way while providing information, or news, to our interlocutors. Of course what counts as news changes from conversation to conversation. But what remains constant, at least in paradigmatic cases of inquiry, is that information involves *ruling out* alternatives. So guidance by actuality isn't all that matters.

On the other hand, prototypical assertion involves more than simply blurting out news, no matter how informative. If I told you the universe has, is, and always will consist entirely of a single pea, I would be giving you a fantastic amount of information—allowing you to rule out all but a small class of related possibilities. Of course, this wealth of information would be irrelevant to how things actually stand, and to tell you this would be highly uncooperative. In fact, you typically can't understand someone as providing information in the way characteristic of assertion unless you see them as at least pretending to strive for accuracy.

So: volunteering information and being guided by actuality are conceptually separable, and integral, components of the speech act of assertion. Some speech acts that lack either feature are no longer recognizable as assertions, and speakers that don't strive to provide accurate information are not engaged in a prototypical cooperative assertive act in inquiry.

I'm highlighting these two features because I'll use them here, and in §5, to do two things. I want to show in this section how the conceptual separability of these features helps make room for a significant tripartite classification of assertoric statuses. And I want to show in §5 that a third classificatory status opened up by the interaction of these features plays the roles gap theorists need.

But it is equally important for me to flag some things I'm not claiming. Drawing on Dummett, I noted that tripartite classifications cannot do the work that gap theorists need unless they are somehow bound up with assertoric effects. For example, classificatory schemes conceptually tied merely to compositional statuses are clearly unhelpful to gap theorists. But some authors have

[11] Note that since these acts do manipulate pieces of information we can acceptably talk of the truth or falsity of the information or propositional content put forward in them. Unlike with assertion, though, truth of the information conveyed is not a virtue of these speech acts, nor is falsity a shortcoming. I discuss how to accommodate truth-value allotments to propositions within my framework in §4.

suggested restrictive constraints on what *kinds* of assertoric effects merit treatment as truth-values. For example, Glanzberg (2003) takes it that assertoric practices have what he calls *intrinsic purposes*.[12] These are "purposes an act [as opposed to an agent] has in virtue of being the kind of act it is." A rule-governed practice may foist such purposes on 'moves' within the practice, in which case these purposes facilitate and regulate intentional engagement in the practice. Glanzberg claims that assertion has such an intrinsic purpose (namely "to assert that truth conditions obtain"), and that as a result truth-value allotments must be made sense of in terms of achieving it.

I do *not* claim that the effects I've drawn out meet this high standard. I worry, for reasons that I won't delve into here, that assertions do not have a single intrinsic purpose, and especially not an intrinsic purpose that could regulate truth-conditional status.[13] Instead of delving into a debate on this matter, however, I can operate in abstraction from it. The problems I have raised for gap theorists in §1 made no mention of intrinsic purposes, but are problems enough. (Indeed, they may be worse problems, for not relying on claims about intrinsic purposes.) And rather than arguing that my effects mark off intrinsic purposes, I'll argue (in §5) that interactions between my effects end up playing all the empirical and theoretical roles gap theorists need. I believe that if this can be established, gap-theorists should be indifferent as to whether assertions have intrinsic purposes (or constitutive aims, etc.).

So, let's return to the attenuated Stalnakerian picture, on which two prototypical features of assertion are the supplying of information and guidance by actuality. My proposal is to take truth-at-a-world to track a normative feature conceptually tied to the guidance of assertion by actuality—a constraint on performing an assertion 'correctly' if one were rightly so-guided. By contrast, I want to take falsity-at-a-world to mark the places where an utterance has informational clout—the 'ruling out' effect that makes news into news.

[12] *Op. cit.* pp.160–3. On some readings, Dummett himself endorses something like these constraints on truth-value allotments. I won't concern myself with how to read Dummett on this point.

[13] I suspect that views that treat assertions as having a single intrinsic purpose (or a small number of related purposes), especially connected with the Stalnakerian picture, may lack the requisite flexibility to accommodate dissimilarities among assertions of mathematical claims, conceptual truths, or assertions about taste or morality. By contrast, as I mentioned in n.10, my attenuated version of Stalnaker's view is compatible with the claim that sometimes assertions have effects disconnected from inquiry about the actual world, and so may not be limited to supplying information about it. Relatedly, treating assertions as having a single intrinsic purpose tied to the Stalnakerian framework that regulates truth-evaluability, as Glanzberg seems to, is in danger of ruling out non-factualism about any class of assertions by fiat. This is because such a view seemingly cannot accommodate the idea that a successful assertion is neither true or nor false (i.e., neither accomplishes, nor fails to accomplish, assertion's single truth-regulating intrinsic purpose). If this were so, it would seem that we could *a priori* rule out expressivist, non-factualist treatments of assertions involving epistemic modals (for example) as explored by Yalcin (2007, 2011), Rothschild (2012), and Moss (forthcoming). I do not think non-factualism about all kinds of assertion can be ruled out *a priori*. Note that in such cases we can't avoid the problem by relegating uses of modals to a new kind of speech act that is not assertion, since modalized and non-modalized language can mingle in a single assertion-like speech act.

Let me be a little more specific. Call an asserted utterance *informationally efficacious at a world* w if the asserter conventionally sorts w so as to rule it out of the context set. This effect shouldn't need much explanation given the Stalnakerian framework, since on that framework assertions characteristically function to rule worlds out of a context set. Informational efficacy just tracks which worlds an asserter is conventionally proposing to rule out in that sense.

Call an asserted utterance *accuracy inducing* at a world w if the asserter conventionally sorts w as she should sort a world, insofar as she is guided by actuality in an act of information transfer, and were she to know that world was actual. Accuracy inducement is a complex effect that is more circuitously connected with the Stalnakerian framework, and will accordingly require more explanation.

In Stalnakerian assertion, an asserter uses conventional signals to sort worlds. Prototypical assertion involves guidance by actuality, which means that an asserter is guided in the sorting process by her conception of what the actual world is like. Assertions are thus essentially epistemically situated: doing what it takes to prototypically assert involves selecting and regulating among world-sorting signals on the basis of one's epistemic state. How? Most clearly: awareness, or knowledge, that a particular world is actual should lead a prototypical asserter to treat that world a particular way in the act of partitioning worlds.[14] An assertion is accuracy inducing at a world w, in my sense, just in case the asserter, through her utterance, treats w in that way. Otherwise put, a world is induced for accuracy by an assertion, if an asserter sorts the world w the way she should sort a world, were she to know it was actual.

Note that accuracy inducement is normatively characterized, in terms of how speakers ought to behave in certain (sometimes counterfactual) circumstances. This ties accuracy inducement, as a prototypical assertoric effect, with the commitments asserters undertake and practices of blame and rectification in holding asserters responsible for their actions. If w is actual, and an asserter does not produce an assertion that is accuracy inducing at w, then either the asserter was in an exculpating epistemic state, or the assertion produced is imperfect or incorrect by the standards of actuality-guided information transfer. Depending on other factors, this may mean that the asserter herself is subject to blame.[15] Those other factors may involve the many other purposes we have in asserting, corresponding to many other ways an assertion can be 'correct' if not 'accurate' (for example, by being relevant, expedient, polite, and so on). But note that, by definition, these ways of being 'correct' are irrelevant to accuracy induce-

[14] Of course it may be infeasible to know of a particular world w that is actual, owing to the degree of determinacy in worlds. But we could easily recast the definition, without important losses, in terms of 'coarser' worlds, or sets of worlds, which speakers are in a position to distinguish between.

[15] The basic idea here—that responsibilities factor into the prototypical function of assertion—is not new, and has been explored in different ways in the literature. A weak version of this idea is found in the recognition that assertion prototypically involves an invocation of trust—an idea that is implicit, for example, in Grice (1957). A stronger version of this idea, departing in some ways from my treatment here in its focus on the connections between assertion and inferential licensing, is found in Brandom (1983).

ment, which is defined in terms of correctness merely *insofar as one is guided by actuality in an act of information transfer*.

There is no such thing as an assertion's being accuracy inducing and informationally efficacious at the same world. Proposing to rule out a world in assertion as a candidate for actuality, trivially, is not to treat that world the way it ought to be treated, were you to know it was actual. That's precisely what it is to be guided by actuality in supplying information.

But I think it *does* make sense for an assertion to be non-accuracy-inducing and non-informationally-efficacious. And this is how truth-value gaps can be made relevant to assertoric status. So my proposal (yet to be defended) is that the composite effects or statuses of an asserted utterance can require a tripartite classification as follows:

(t) An utterance U is true-at-w if and only if it is accuracy-inducing at w.

(f) An utterance U is false-at-w if and only if it is informationally efficacious at w.

(u) An utterance U is gappy-at-w if and only if it is neither accuracy-inducing at w nor informationally efficacious at w.

A quick caveat: the distinctions in (t), (f), and (u) are supposed to help us understand the relevance of truth-value allotments to a particular kind of speech act—assertion. Gaps are arguably useful in characterizing the objects of other speech acts, and possibly the objects of attitude states as well. Accordingly (t), (f), and (u) are not definitional of bearing truth-values generally. Rather, they are telling us how asserting something with a certain truth-value (in particular a gappy one) will make a difference to assertion in particular. This will hopefully become clearer in §4 when I discuss a more general proposal for understanding truth-value allotments to abstract objects like propositions. For now, since we're focusing on assertion, these complications can provisionally be set aside.

Now, a key question must be faced: why think that any assertion *could* bear a (u)-like status? Why think that failure to be accuracy-inducing is nothing over and above being informationally efficacious, so that the conditions in (u) are effectively contradictory? This much seems true: Normal, successful assertions will treat each world, or at least each world in the context set, in one of exactly two ways, corresponding to two halves of a bipartition. On one half of the partition we'll have the worlds the speaker conventionally proposes to rule out. And each world on the other half will be sorted in just the way one should sort a world, were one to know it were actual.

But though this holds in normal, good cases of assertion, I do not think it always does. The reason why is that there can be 'sorting failures'—cases where some (but not all) worlds end up not being conventionally sorted at all in an assertion. To show how this might happen, I'll discuss an example of a signaling process with a structure analogous to that involved in Stalnakerian assertion. I've chosen an example where signals have minimal linguistic compositional structure. This is in part to make clear that compositional effects aren't really

at issue. But, more importantly, it is to avoid any controversies associated with the semantics of any particular linguistic construction.

Suppose A and B, who live at some distance from each other, are in the business of investigating what the world is like and, for simplicity, we'll assume they've narrowed the possibilities down to just five worlds w_1–w_5. To the end of distinguishing between these worlds, they have developed a system of communication using light signals. They each have a billboard with five bulbs labelled "1"–"5", and can flash signals to each other that illuminate each bulb either green or red. A convention has cropped up according to which a red/green partition of lights communicates that worlds corresponding to the lights on the red side of the partition are not actual.

We can think of flashing a set of lights in green and red as a signal that constitutes an attempt at actuality-guided information transfer, just like assertion in natural language. It's an explicit, vivid partitioning of worlds with a mind to how things actually are. And we can suppose a flashed partition affects A and B's mutually recognized beliefs in the obvious ways, enabling us to identify the prototypical effects of assertion: accuracy-inducement and informational efficacy. Let's go through a quick example.

A flashes lights 1, 2, and 3 green, and 4 and 5 red. Call this *Signal 1*. Signal 1 is accuracy-inducing at the worlds corresponding to the green lights: A chose a signal that 'sorts' w_3 (for example) in the way A should have signaled it to be sorted, had A known w_3 were actual. In other words, to the extent A is being guided by actuality, A ought to have sorted w_3 in the way she did, were she to have had that knowledge. Furthermore, Signal 1 is informationally efficacious at worlds corresponding to the red lights: A sorted the world w_4 (for example) in such a way as to propose that it be ruled out of the context set. I mean for all these claims to be relatively clear, straightforward applications of the concepts of accuracy inducement and informational efficacy as I've defined them.

So much for a simple case. Now a complication arises: a troublemaker has knocked out the light on A's billboard corresponding to w_3, which we'll suppose is still a live possibility in the context set. This is mutual knowledge. How can A and B proceed? One could worry that their 'assertions'—their acts of actuality-guided information transfer—have become impossible. After all, they can no longer fully partition the mutually recognized space of open worlds in the way ideal assertion should. But claiming that this renders assertions impossible seems like an overreaction. Put yourself in A's shoes: would knocking out this one light have made it impossible for you to communicate information to B broadly in line with previous signaling conventions?

Aware of the imperfection in her board, A sends a signal nonetheless, flashing lights 1 and 2 green, and lights 4 and 5 red. Call this *Signal 2*. I claim that Signal 2 still seems like a good—though not ideal—way of supplying information with a mind to features of actuality. It conveys the information that w_4 and w_5 are non-actual, for example. But it is nonetheless 'defective' in some limited ways.

To see this, consider two questions about w_3. First, does Signal 2 conventionally sort w_3 the way A should have, were A to know w_3 were actual? No.

Given the conventions for partitioning, and the imperfection in the billboard, A is precluded from conventionally sorting w_3 in any way at all. *A fortiori* A could not have conventionally sorted it in the relevant way. And this is significant to understanding structural features of the signal. We can't just assimilate w_3 to the worlds flashed green, for example. If we did say this, we'd lose out on a very important difference between Signal 1 and Signal 2. Signal 2 is defective in some way that Signal 1 is not—but only *partially* defective. The signaler departed, of necessity, in some limited way from the conventions governing the signaling process.

But then does Signal 2 conventionally sort w_3 so as to rule it out of the context set? Again, no, and for the same reasons. Failure to sort a world at all is not to conventionally sort it so as to rule it out. And, again, failure to recognize this will lead to conflating Signal 2 with other signals that lack its local imperfections. If we assimilate w_3 to the worlds flashed red, we will misleadingly construe Signal 2 as in part a conventional proposal to rule w_3 out of the context set, which it is not. There are no conventional grounds for B to rule out w_3 on the basis of Signal 2, and no reason for A to think Signal 2 will be so-construed.

So far I've just focused on the effects at w_3 and claimed that a straightforward application of my definitions shows that *in at least one case* a signal can fail to be accuracy inducing at a world without thereby being informationally efficacious at that world. So the negation of the right-hand side of (t) does not entail the right-hand side of (f). In other words, the right-hand side of (u) is a conceptually coherent status for an assertion to have at a world.

This wouldn't be significant if Signal 2 didn't constitute an assertion at all. I don't want to haggle over the meaning of "successful assertion". But I want to maintain is that it is theoretically confused to construe Signal 2 as a simple assertoric failure, like a case in which A tries to send a signal and no lights flash because the power is out. Signal 2 maintains some of the characteristic effects of actuality-guided acts of information transfer. For example, Signal 2 is informationally efficacious at w_4 and w_5: it is part of a proposal to remove those worlds from the context set. Signal 2 can be 'well-received' by B and, if it is, the context set should narrow to $\{w_1, w_2, w_3\}$. Moreover, Signal 2 is accuracy inducing at w_1 and w_2. Unlike w_3, w_1 is explicitly sorted the way A should were A to know w_1 was actual.

So the sorting failure in Signal 2 leads to a tripartite structure of effects intimately bound up with prototypical acts of assertion: the signal is one for which some, but not all, worlds are neither accuracy-inducing nor informationally efficacious. This is the only conclusion I mean to establish in this section.

As I said, this conclusion seems to follow from simple applications of my definitions to a particular, circumscribed hypothetical case. But there are some worries that I've given a misleading description of my case, or oversimplified it.

Here is a first worry: Isn't it an artificial feature of my case that there are two different signaling conventions associated with different treatments of a world—two different colors of lights per world, for example? Why not think that prototypically there is only one kind of signal for 'sorting'—a signal for

ruling out, say—and that for each world one either does it or doesn't do it? If, for example, we replaced my above example with only red lights for ruling out worlds, with no green lights, wouldn't my tripartite distinction evaporate?

There are two equally important replies to this worry. First, I am only trying to establish a conceptual possibility of a certain kind. As such, it matters less for my purposes that assertoric acts could involve signaling conventions that minimize the presence of gap-like effects than that they also *could not*, depending on the conventions for sorting worlds. This is important because in natural language communication we do not, and cannot, sort worlds in so simple a way as in my signaling example, where A and B can tailor their signals world by world. Rather, in assertion we may (to take one example) sort worlds on the basis of whether certain objects do or do not bear certain properties in those worlds. If we use an object to sort worlds into two sides of a partition in this way, the worlds at which the object doesn't exist may be cases where something structurally like the foregoing partial sorting failure takes place. The important point is that *some* ways of sorting worlds are especially prone to sorting failures. That's the only thesis gap-theorists need.

There is also a second reply. Even if assertions did involve simpler conventional signals for treatments of worlds, those signaling conventions would still inevitably be subject to indeterminacies of use, which themselves would generate (u)-like assertoric effects.

To see this, we can construct a mutually recognized 'clear indeterminacy' of use like that I raised in §2 with the example of Chuck. Recall that these are situations where a case is so neatly situated between extremes that not only are competent judges uniformly unwilling to classify it using a predicate or its negation, but they mutually recognize this. So let's suppose that A and B only flash signals with red lights, as a proposal to rule out such worlds. Green lights aren't involved. But something goes wrong (perhaps a glitch in $A's$ board, or a mistake A makes in coding the signal). When A tries to illuminate only the bulbs corresponding to w_4 and w_5, the bulb corresponding to w_3 also illuminates very slightly, perhaps with a somewhat reddish hue. Call this *Signal 3*. In Signal 3, bulb 3 illuminates to just such a degree that both A and B are mutually aware of the following: it is so neatly situated between being being illuminated red, and not being so illuminated, that A and B (and any other signal-users, should they be any) are unwilling to classify the bulb as illuminated red, or not. They agree that calling it "illuminated red" or "not illuminated red" are both inappropriate.

If this were so, both A or B should recognize that producing Signal 3 is too faint at bulb 3 to be a good way of trying to rule out w_3. It's not a signal that will conventionally have that effect for A and B (and any other signalers) given their mutual awareness of the indeterminacy. But neither will A and B consider the bulb illuminated sufficiently to have treated w_3 appropriately were one to know it was actual. On the contrary, precisely because of the indeterminacy it can't be recognized by each of them as having satisfied the constraints on appropriate treatments of such worlds. We have here the same phenomenon discussed in §2: clear indeterminacies in linguistic use can still lead to determinate assertoric

effects. But the assertoric effects that arise ensure that Signal 3 is structurally analogous to Signal 2 (and mutually recognized as such), even though there is only a single signal-type for sorting. It is defective—but only partially so. Again, Signal 3 can still convey some information, and in it two worlds are still clearly induced for accuracy.

Note that these two replies taken together establish structural constraints on the presence of gaps that we saw were necessary for gap theorists in §2. First (by the second reply): indeterminacies in linguistic use can correspond to gappy behavior, even if we are able to clearly identify their assertoric effects as a result of the indeterminacy.[16] Second (by the first reply): indeterminacies are sufficient but not necessary for gappy status. Indeterminacy is one way gaps can arise, but there are others as well. So the objection to which I've replied actually brings out important strengths of connecting (u)-like behavior to gappiness.

I'd next like to consider another line of resistance to my example, drawing on Glanzberg (2003), that I think also points up some important general lessons. Glanzberg, as I mentioned before, claims that truth-value allotments are conceptually tied to an intrinsic purpose of assertion—a claim which I haven't endorsed. But Glanzberg provides two strategies for dispensing with gaps that seem to me to have some force independently of this thesis. So I will try to formulate and evaluate them as such, minding that in so doing they may not be as true to their force within Glanzberg's larger framework.[17]

Glanzberg's first strategy is to distinguish assertoric gaps from compositional gaps, roughly along the lines proposed in §1, and construe alleged gaps along the latter but not the former lines. This challenge is already avoided on the present view, which explicitly construes gaps as connected with assertoric effects that are on no construal mere compositional statuses.

But Glanzberg's second strategy may be more troubling for my view insofar as it draws specifically on features of the Stalnakerian framework for assertion—in particular on the role of the Stalnakerian context set. The strategy begins by conceding that we may well have linguistic conventions that lead to something broadly like my sorting failures, or other gap-like behavior, at some worlds. But the strategy maintains that in an attempted assertion involving such 'gaps' one of two things will occur. On the one hand, the relevant gap-like behavior may arise for worlds *inside* the context set. If so, there will simply be *failed* assertion. Hence, there will be no need to appeal to gappy features of 'what is asserted': *nothing* will be asserted. On the other hand, all gap-like behavior might be relegated to worlds *outside* the context set, in which case we will have a successful assertion that renders the gap contextually irrelevant. In this case, too, there will be no need for gappy objects of assertion: the assertion will have

[16]Note also that 'indeterminate indeterminacies', should there prove to be any, arguably may also generate (u)-like status. In particular, any indeterminate indeterminacy in linguistic use will be one where an assertion will be poorly used to achieve (t)- or (f)-like effects. This will be so, even if we can't, or can't as easily, pinpoint any particular case where we can say that these problems are arising (precisely owing to the higher-order indeterminacy).

[17]The first strategy is discussed at Glanzberg (2003) §4.1, but what I'm calling the 'second strategy' actually mixes two sets of remarks at §4.2 and §6.

a strictly bipartite structure in the context set. Either way, there is never a need to apply a tripartite scheme of statuses to a successful assertion or its object.

Let me reframe the ideas in another way, focusing on assertions that exhibit a (u)-like status at worlds in the context set in which they're produced. Then on the reply being considered, I face this dilemma: either the context set narrows prior to the interpretation of the assertion to obviate gaps, perhaps along the lines of accommodation in the sense of Lewis (1979), or there is no assertion at all, and no assignments of gaps necessary, since there is no object of assertion to assign gaps to.

As before, there are two replies to this view. The first is that the dilemma just presented is a false one on my view. It is possible for an asserter to create signals in a way that only partially sorts the worlds of the context set, without leading to complete assertoric failure or accommodation. One way this can occur is if this partial sorting is somehow unavoidable. This is what occurs in the case of Signal 2. In that case, the context set can be updated as the result of the 'assertion'—if B 'accepts' the assertion two worlds are ruled out. But no accommodation by ruling out the unsorted world w_3 (even provisionally as a means to facilitate the signal's interpretation) is necessary for this to occur. The fact that this is an imperfect actuality-guided act of information transfer does mean it simply fails to be an actuality-guided act of information transfer altogether. We can't just label Signal 2 an assertoric failure. Nor does the fact that information can be successfully transferred preclude a signal from exhibiting 'local' aberrations. We can't treat the Signal 2, world by world, with only two statuses.[18,19]

This is not to say that the dilemma I've outlined never arises. Rather, the claim is that whether it arises depends on further features of the conversational setting, beyond the conventional assertoric statuses given by (t), (f), and (u). To see this, we can note that a signal identical to Signal 2 from the standpoint of my assertoric effects, but given in a different setting, may indeed lead to no assertoric uptake unless accommodation takes place.

Suppose that A and B still work with red/green partitions of lights, but are trying to cut costs: illuminating bulbs costs money. So once a world is mutually

[18]Glanzberg replies to a similar worry that information may be 'communicated' in failed assertion without actually being *asserted*. This reply may make more sense if we follow Glanzberg's construal of assertion as circumscribed by his choice of intrinsic purposes. But on my view, at least, the informational effects arise in Signal 2 directly due to the encoding of information in an actuality-guided act of information transfer. There is no reason to construe the act in question as a new, non-assertoric act, nor as a failed assertion that oddly has each of assertion's prototypical effects.

[19]The interest of such cases needn't be merely theoretical. Another way sorting failures may not force accommodation or failed assertion is if they are the product of linguistic mechanisms whose utility precisely consists in sorting among subsets of worlds. Assertions of indicative conditionals may have such a status. If indicative conditionals are gappy at worlds where their antecedents are false, then they will be used in assertions to partition only the worlds where their antecedents are true. But then, as an empirical claim, we can see that such partial sortings don't lead to either accommodation or assertoric failure merely because the context set contains *some* worlds where conditional antecedents are false (lest we make virtually all assertions of indicative conditionals failed assertions).

recognized to no longer be a live possibility in communication, they cease to illuminate that light in further communication. Now, A sends out *Signal 4* that is just like Signal 2: green at bulbs 1 and 2, red at 3 and 4, and unilluminated at 3. But (due to inattention, or perhaps intentionally) A does this *before* w_3 has been ruled out of the context set. Now B has good reason to be confused at the signal—to either reject the signal in a demand for clarification, or to 'accommodate' by accepting and proceeding as if w_3 had been ruled out after all.

This last example points up a general and important lesson: there is a danger in tying the truth-conditional status of assertions too closely to contingent features of conversational settings, including how they shape the conversational context set. How Signals 2 and 4 can or should be received by B differs, even though from the standpoint of conventional assertoric statuses connected to truth-evaluability, they are the same.

We can recruit these ideas to formulate a second, distinct reply to the dilemma. Suppose my first reply is wrong, and assertions that exhibit any gap-like status at worlds within a context set would either lead to accommodation, or simple failure to update the context set. I claim neither case should influence the utility of assigning gappy truth-conditional status to assertions or assertoric objects at various worlds. The limited alternatives for reception of assertions only dispense with gappy treatment of certain worlds if we can and need only assign truth-values to assertions or their objects at (i) worlds within a starting context set given (ii) a successful update of that context set via assertion. But neither restriction on allotments of truth-values seems to hold, and with good reason. An assertion is a general kind of proposal, and we can distinguish truth-conditional features of that proposal independently of its role in shaping, or failing to shape, features of the context in which it's produced.

Begin by considering cases where there is something like gappy assertion, but accommodation doesn't take place. If we follow the current proposal, an assertion that is gappy at a world in the context set, and that doesn't lead to accommodation, should instead result in failed assertion, which requires no world-by-world assignment of truth-values at all. But this intuitively seems wrong. Suppose, for example, that utterances containing names are gappy at worlds where the actual referent of the name doesn't exist. And suppose Jane utters "Milo is a dog" at the actual world where Milo exists and is a dog, but in a conversation where conversational participants are ruling out worlds where dogs exist and overtly refuse to accommodate, hence leading to no update of the context set. Then on the current proposal, Jane's utterance should be treated as failing to express a truth for failing to partition the context set, and hence failing to express anything truth-evaluable at all. This verdict seems wrong. It seems like we have a true, but contextually inappropriate assertion, even if we are extremely confident that the accommodation, necessary for the assertion to partition the context set and have any actual effects, fails to take place.[20]

[20] I submit the intuition still persists if even Jane herself didn't intend to leave open worlds at which dogs exist when speaking (say, owing to a misconstrual of the semantics of her words).

Consider instead cases where accommodation does take place. Then note that the current proposal would only obviate gaps if there are no significant truth-value allotments to an assertion or its object at worlds outside the context set (perhaps post-accommodation). But this too seems wrong. There are intuitive, and theoretically important notions of what is said by an assertion which permit us to ask questions about its truth-conditional status at worlds outside the context set.

Suppose, for example, that referent-less definites generate gaps in my sense. We can meaningfully ask about the truth-conditional status of what is said with a truthful actual assertion of "the Queen of England had one sibling" at many worlds outside its particular conversational context set, including any where England is no monarchy. Answers in the latter case are, of course, theoretically controversial. But what is much less controversial is that the questions can be sensibly asked. And we should be able to ask about the status at the actual world of what is asserted with an actual utterance of "the King of France is bald", but in a context where participants accommodate the utterance, leaving open only worlds with a unique king of France, and thereby ruling out actuality.

Related to all this, we should be able to maintain that two assertions of "the Queen of England had one sibling" at two different conversations in the actual world *say the same thing* (i.e., have the same truth-evaluable object of assertion), even if the context set of the first conversation includes only worlds where England has a unique queen, while the second does not. This is not obviously going to be possible if we say that in the second case there is an assertoric failure that deprives the assertion of a truth-evaluable object.

For the current strategy to really rule out gaps of the sort I've described, the foregoing questions must be wrong-headed, and the intuitive construal of same-saying misguided. But all seem sensical, and theoretically significant. At least, ordinary construals of the objects of assertion strongly favor such treatments.

All this reveals that Glanzberg's second strategy for dispensing with gaps, at least insofar as it is divorced from his broader framework of intrinsic purposes, depends on far too restrictive a conception of how and when truth-values are allotted. My view helps reveal why: assignments of truth-values record conventional signaled treatments of worlds in *proposals* to influence the context set. Those signals may conventionally sort (or fail to sort) more worlds than exist in the context set, and may ultimately have no influence on the context set. But neither of these facts change the statuses of the sortings, and it is these that truth-values are seemingly used to record.

To sum up my two replies: the dilemma for the gap theorist sketched above is in fact no dilemma in general. And even if it were, the resulting proposal to obviate gaps by leaning on the dilemma suffers from a general problem—an attempt to tie the truth-conditional status of an assertion too closely to features of its contingent influence in particular communicative settings. Assertions that exhibit (u)-like statuses at some worlds can be 'successful enough' for us to assess their truth-value at worlds within and outside the context set, whether or not accommodation relegates problematic worlds to the latter set.

This concludes my defense of the claim that it is conceptually possible for

an assertion to exhibit (u)-like status at some, but not all, worlds. I noted earlier that to establish this possibility, I didn't want to lean on features of any familiar natural language constructions, so as to avoid separate controversies about their semantics. This is why I focused on my signaling example, where such features weren't in play. It's beyond the scope of this paper to convincingly argue that any particular linguistic construction generates (u)-like status. But before pressing on, I want to give some indications why I think most, if not all, cases that have historically been treated as generating truth-value gaps also generate (u)-like statuses, as a way of bolstering the utility of the framework.

First, recall that we've already explored how and why indeterminacies in linguistic use seem to generate (u)-like statuses, at least for 'clear indeterminacies' of use. As a result, if vague uses of language involve such indeterminacies, we will expect them to exhibit (u)-like effects at worlds where indeterminacies become recognizably problematic for coordination. It is possible that something similar could be said of liar-like paradox.

Second, consider indicative conditionals with false antecedents. Dummett correctly noted that we don't use an indicative conditional to rule out worlds where its antecedent is false. That is, conditionals are not informationally efficacious at worlds where their antecedents are false. But it is equally wrong to aim at producing indicative conditionals whose antecedents one knows to be false. If one knows that p is false then one ought not assert that if p then q (insofar is one is engaged in a cooperative act of information transfer guided by actuality). This just means indicative conditionals have (u)-like status at worlds where their antecedents are false.[21]

Third, consider expressions involving reference failure. Asserting "Nemo is clever" arguably somehow presupposes that Nemo exists at worlds in the context set, and the assertion signals to rule worlds in or out in assertion as a function of how things stand with him at those worlds. It is an assertion that is accuracy-inducing at worlds where Nemo is clever. It is a conventional proposal to rule out the worlds where he is not. But it does not conventionally signal to rule out the worlds where he doesn't exist—it takes for granted that he does. This doesn't mean, however, that it is therefore a good idea to assert "Nemo is clever" if there is no such person. Again, if this is really the combination of assertoric effects assertions involving names have, they should be modeled with a (u)-like status at worlds where the referent of the name doesn't exist. Essentially the same can be said of some strong presupposition failures like uses of non-referring definites.

As I say, a full defense of any of these claims would require much more discussion. My goal is primarily to make sense of a framework that gap theorists can in principle apply to these constructions. But even the framework's defense is still incomplete. Two issues remain: what are the bearers of truth-value gaps

[21] Note that this view would explain the temptation to identify indicative conditionals with the material conditional: "if p then q" carries the *same information* as "not p or q"—they are informationally efficacious at the same worlds. But they differ with respect to accuracy inducement: the latter, but not the former, is appropriately actuality-guided to assert if p is known false. (This point needn't exhaust the important differences between them, of course.)

on the view I've just given? And why think gappy effects are worth construing as a kind of truth-value allotment? In particular, can we be sure my gaps play the theoretical roles that have been assigned to gaps by linguists and philosophers? I'll take these questions in turn.

4 Propositional Gaps and Mental Content

Drawing on Dummett, I conceded that truth-value allotments must ultimately be made relevant to assertoric effects. And in discussing this issue, I briefly tabled the controversial issue of what bearers of truth are. But it is now necessary to take up that question.

I focused in §3 on how to treat assertoric statuses as trivalent, speaking provisionally of utterances as being true, false, or gappy. But is it appropriate to take speech acts of assertion, or utterances produced in them, as the bearers of truth? It is more common to take propositions—mind and language independent abstractions—to do this work. We can (and, I think, should) adopt some such abstractions as truth-bearers, and bearers of gaps, on my view. Indeed, I was leaning on this possibility in my most recent reply to Glanzberg. But there are some important caveats for how a theory of such abstractions should be understood and applied.

It should be obvious that there could be multiple assertions (if only tokenings of the same assertoric type) that will have similar profiles of (t)-, (f)-, and (u)-like statuses. That is, there can be different assertions that involve signals that are informationally efficacious or not, and accuracy inducing or not, at the very same worlds. If so, we will want to be able to secure a sense in which some of these utterances 'say the same': have the same 'object of assertion'. We can capture the relevant similarities among such assertions, and their corresponding utterances, by introducing abstract trivalent tri-partitions of worlds.[22]

Each cell of these three-fold partitions of worlds should have a distinguished status. A helpful way of thinking of such tri-partitions is as abstract representations of sorting failures connected with the creation of an information partition. The abstraction captures an incomplete sorting type. This idea enables the tripartitions to be applied to other speech acts than assertion if we like, including those that may not characteristically be actuality-guided (suppositions or conjectures, for example).

Note that once we do this, there is a sense in which the abstract tripartitions are the real bearers of truth. We understand gappy status foremost, and abstractly, as a 'world unsorted', where a world can go unsorted in other speech acts besides assertion as long as they involve the creation of information partitions. Worlds that go unsorted in other speech acts may not have exactly (u)-like effects. But this will be fine for the gap theorist's purposes. To meet Dummett's challenge we need tripartitions with a third status that *at least* makes some difference in assertion. (u) tracks what that difference is, even though (u)-like

[22] Or, if we prefer, we can take objects with more structure—say, something like Russellian or Fregean propositions—to determine such tripartitions.

status in assertion flows from a more general, abstract imperfection—'failure to sort'—that may well have slightly different effects in other speech acts.

Now, to ensure that these trivalent abstractions play the proper role of individuating assertion types as their objects, we should say that an assertion or utterance is true (false, gappy) just in case it *expresses* an abstraction that is true (false, gappy), where "expression" is cashed out in such a way that expressing a tripartition validates something like (t), (f), and (u) from §3. As such, our abstractions will be theoretical posits, furnishing objects of assertion that make sense of same-saying. But a further question remains: are these abstractions rightfully considered *propositions*?

The answer to this question is not simple. Propositional content is typically called on to play not only the role of assertoric content, but also that of mental content. One way of thinking of mental content is to treat it as the realizer of a mental content role, where a crucial feature of this role is to characterize aspects of mental states that explain behavior at roughly the level of abstraction of folk psychology.[23] In the context of our investigation, this raises the question of whether, and how, my abstract tri-partions of worlds can figure in characterizing relevant aspects of mentality.

Here is where a key complication arises: there is one quite important way in which the gappy abstractions *cannot* characterize mentality on my view.

Gaps, as I've described them, do not merely mark off a property of information—that is, a property of something which rules out possibilities. They mark off a feature arising in an attempted *act* of information transfer whose efficacy hinges on *convention*. The fact that assertions are acts governed by conventions help make sense of how it is that 'sorting failures' could arise. But in the absence of conventional acts it's not clear what such sorting failures would amount to.

To appreciate this, let's begin by considering an example where truth-values could be used to talk about abstract pieces of information in the absence of a performance: in modeling the information a reasoner gathers from a piece of evidence—say, a certain experience. Here the information gathered from the evidence is incompatible with certain ways the world might be. As such, when we model the information acquired we might do this with an asymmetric partition of possibilities, with one side having the now familiar ruling-out effect. And we might use something like 'accuracy inducement' to characterize the parts of the partition which don't have that effect.

Importantly, though, it's not as if the world 'asserts' the information modeled. Because there is nothing like an action of supplying the information, it's not clear what in the process of evidential acquisition could count as anything like a sorting failure among worlds. Who would fail to sort appropriately? The world? In what sense? Perhaps the reasoner. But what point could there be in distinguishing among the worlds the reasoner has not ruled out with the help of the evidence? No point, if we are just modeling the information acquired and no further act of supplying it. Unlike in the case of assertion, it is difficult to think of the evidence acquired as prone to partition failure.

[23] See, e.g., Stalnaker (1984), Lewis (1994), and Yalcin (forthcoming).

What I'm trying to highlight with this example is that much importance in tracking contributions to accuracy conditions of what is expressed in assertion has to do with the importance of the act of asserting. It is those making assertions who are responsible for the signals they use to provide information, and who can be held accountable when their assertions are in the relevant respects inappropriate, or imperfect.

I have trouble seeing how, in forming and retaining beliefs, there is an activity analogous to the act of sorting among worlds that we find in assertion. This strains the transposition of a threefold classification of effects in assertion to thought. Granted, *some* kind of 'performance' might underly belief formation. Occurrent beliefs can be acquired at specific times, in specific circumstances, and we can be evaluated, and criticized, for our belief forming dispositions. But these 'performances' and forms of criticism don't seem to get us any closer to a sense in which a thinker has engaged in a process with a structure like my sorting failures. They seem more like the case of evidential acquisition, in which my tripartitions lose their utility.

The point can be pushed further. Earlier I said that part of what makes tracking a third status in assertion possible is that it is an act, but also that it involves *convention*. So far I have focused on the special contribution of the performative aspect of assertions. But an equally important difference between language and thought arises in considering the role of convention in speech. According to my story about gaps in assertion, their sources owe to violations of signaling conventions in partitioning worlds. There can be 'corrupted' pieces of information in assertion because assertoric effects are conventionally encoded in a signal, and decoded from it by interpreters. It is because there are processes of encoding that we can encode inappropriately, for example by omissions.

Again, the encoding and decoding processes necessarily present in assertion do not obviously have analogs in thought. Even if there are processes in cognition whereby beliefs are stored in our heads in some recognizably linguistic form—an idea that is already highly controversial—it's not obvious that there is a special problem of interpretation that we face when retrieving and manipulating the sentences in this language of thought. In fact there is every reason to think that processes of interpretation must stop somewhere, and that the stopping point would occur at or before the manipulation of this hypothetical mental symbolism.[24]

In sum, my account of the source of gaps in assertion relied on the fact that assertions were conventional performances. That speakers, as performers, take responsibility for the signals they supply contributes to the importance of tracking accuracy inducement independently of informational efficacy in assertions. Moreover, it is partly because such acts are conventional, and involve

[24]Merely tokening a sentence in a language of thought is typically deemed sufficient for entertaining it. If there were a process of interpretation needed to understand the sentence, this would seem to involve contentful cognition that would have to terminate in the 'real' sentences of the language of thought, that themselves require no interpretation. Otherwise interpretation would either terminate in contentful cognition without language-of-thought sentences, or worse, create a regress, both of which could be problematic for the view.

processes of encoding and decoding signals, that room is made for the sorting failures that constitute truth-value gaps. Because neither features seem to have appropriate analogs in mentality, my theory does not reserve a role for gaps in directly characterizing structural features of mental states.[25]

But we need to be careful about what this shows. I've granted that mental states don't obviously have gap-like relations to individual worlds the way assertions do. But this doesn't immediately mean that trivalent abstractions can't play the role of mental-content. This is because gappy abstractions could still be useful (and even necessary) in characterizing mental structure vis-à-vis worlds that don't have gappy status. Stalnaker (1999) has described one way that this could occur in ordinary attitude ascription.

Stalnaker's proposed semantics for belief involves a kind of transposition of his account of the role of propositions in shaping a context set. Earlier we discussed how the main function of a proposition in Stalnakerian assertion is to partition a set of worlds that constitute live options for conversational participants in inquiry. Stalnaker suggests that propositions used in attitude ascriptions function in an analogous way: to partition a contextually privileged set of worlds. This privileged set of worlds does not consist of those worlds conversational participants are distinguishing among in inquiry. Rather, it is given by what Stalnaker calls the *derived context set*. Very roughly, the derived context set for an utterance of "A believes that p" is the set of worlds conversational participants *allow could be compatible with what A believes*. For an assertion of "A believes that p" to be felicitous, it must partition this set of worlds that speaker and listener think may be live possibilities for A. And when it partitions them, it gives participants information about which belief states A is actually in—and hence indirectly information about what the actual world is like, insofar as A's belief state is in it.

The details of this semantics for attitude ascriptions aren't important here. The important point is that abstractions that serve as the denotations of "that"-clauses in attitude reports may function by partitioning a contextually circumscribed set of worlds. If so, gappy abstractions can be felicitously used in attitude ascriptions, as long as they are used to describe an attitude state's relation to worlds at which the proposition isn't gappy. It can be felicitous and true to say that someone believes a gappy abstraction in this way, when any gappy worlds lie outside the derived context set, just as much as a gappy assertion can be felicitous and true when gappy worlds lie outside a context set containing actuality.

If gappy abstractions play this serviceable, perhaps even indispensable, role in ordinary propositional attitude psychology, there is no reason why gappy propositions cannot also play the role of mental content. Whether gappy abstractions do this in part turns on empirical questions about the semantics and

[25]This still allows that we may be able to make sense of *other* uses of a 'third status' in characterizing mentality. A natural way to introduce such a third status might be, for example, to model relations of ambivalence to worlds, or relations of ignorance owing to conceptual impoverishment—states which in turn seem to have no natural analog in the operation of assertion.

pragmatics of attitude reports—in particular, whether attitude reports behave in roughly the ways Stalnaker proposes. I won't be able to investigate such questions here.

To a limited extent, it won't matter. The foregoing discussion reveals two possibilities for the role of gaps in mentality. Either the empirical case from attitude reports pans out in a way that helps secure the possibility that gappy abstractions play the role of mental content, or it doesn't (in which case we will need non-gappy abstractions to play that role instead). In the latter case, the theoretical objects required to characterize mental content and assertoric content will diverge: there will be more objects of assertion than objects of thought (essentially, because there are objects of assertion that cannot be thought). At this point, we'll face a terminological question of how to the use the word "proposition". It is traditionally reserved for a theoretical abstraction that plays both the role of mental and assertoric content. Should it now subsume both, different, kinds of abstraction? Should it instead subsume only the former, or only the latter? Or should we do away with it? These questions, so far as I can see, are terminological, so I set them aside. The important point to bear in mind is that on all of theses options gappy status will not characterize any structural feature of a mental state. That is the key lesson, for now, to take away from my construal of truth-value gaps.

5 Defect, Projection, and Inference

A truth-value gap is supposed to be (i) a status arising world-by-world at the level of assertoric content (ii) distinct from truth and falsity, that tends to be connected with (iii) defect or infelicity in assertion, (iv) infectious compositional projection, and (v) inference-blocking. §§3–4 were devoted to showing that sorting failures in the creation of an information partition, which lead to (u)-like effects in assertion, satisfy (i)-(ii). This section is devoted to showing they satisfy (iii)-(v).

That (u)-like statuses are connected with some kinds of defect and infelicity follows by definition. Here, for example, is a feature shared by all gaps as I've defined them: assertions gappy at all worlds in the context set involve both defect in the assertion, but also failure *on the part of the asserter* (insofar as they aimed at an information transfer guided by accuracy), distinct from any failure arising in the production of a falsehood. That is, insofar as the asserter is producing an assertion as a contribution to inquiry about actuality, she's performed badly, by conventional standards for linguistic use. This is because she has knowingly failed to sort the actual world in a way that she ought, since she has sorted (or failed to sort) the only live candidates for actuality in a way she ought not. And she has failed in this way without saying anything false. So, assertions gappy at all worlds in a context set will be infelicitous, and speakers of such assertions will be to blame for linguistic misuse barring exculpating circumstances or ulterior aims.

Note that my view does not entail that assertions gappy at only *some* worlds

in the context set necessarily have this status as well. As long as such an assertion is also true at some worlds in the context set, we cannot establish from the presence of those gaps alone that the speaker is guilty of knowingly treating the actual world in a way they shouldn't have. But this outcome—that *some* gaps in the context set don't always lead to infelicity—is required of any view that treats indicative conditionals with gaps at worlds where their antecedents are false. Speakers can be blameless, even by the standards of conventional actuality-guided information transfer, for asserting "if p, then q" when a context set contains some not-p worlds. But note there still is something wrong about asserting "if p then q" if *only* not-p worlds are in the context set (unless one banks on accommodation to broaden the context set).

On my view, whether speakers' assertions are faulty (and speakers are blameworthy) when they are gappy at only some worlds in the context set depends on further features: the context of the signaling process and how the signal is conventionally used. We've already seen these ideas play out with signals 2 and 4, which have the same assertoric statuses world-by-world, but lead to different assessments of speaker blame, and different sets of reasonable reactions on the part of interlocutors. Indicative conditionals are constructions which seem to behave (very, very roughly) like signal 2.[26] Assertions involving reference failure seem to behave more like signal 4, where accommodation or rejection are the logical responses. Recall that the speaker in that case acted inappropriately by the standards of actuality guided information transfer, barring accommodation, owing to the expectation of full partition using the construction. (And, to complete the catalog, assertions of vague content behave somewhat more like signal 3, which might naturally lead to something like confusion or rejection, barring mitigating circumstances.)

So much for defect. What about projection? There are good reasons to think that aberrant projective behavior is going to be derivable from aberrant assertoric behavior, though as always we need to be careful in stating how.

Dummett rightly noted that we should conceptually distinguish assertoric statuses from compositional ones. But, even conceding this, the conceptual distance between these notions shouldn't be overstated. It seems undeniable that assertoric statuses are often recruited for compositional purposes. Many constructions give similar compositional treatment at a world (with other parameters of an index, and context, fixed) to embedded sentences whose assertions would also have similar assertoric statuses at that world. Negation, for example, tends to take embedded sentences whose assertions would be used to conventionally rule out a world w, and give these a consistent compositional treatment: mapping them to sentences whose assertions which no longer do this.

Constructions of this kind—including the familiar extensional conjunctions (*and*, *or*)—seem to manipulate compositional statuses which run parallel to assertoric statuses of their embeddings. This is important because to the extent that these constructions embody conventions for manipulating conventional

[26] Though, arguably, they do so for different reasons: perhaps because conditionals are constructions specifically geared towards producing useful 'restricted' partitions of worlds.

assertoric statuses, like truth and falsity, they will exhibit indeterminacies in linguistic use when it comes to embedded unconventional, gappy, assertoric statuses. That is, aberrant, defective status of an embedded sentence should translate for such constructions into aberrant, defective projective behavior. This should lead, again, to aberrant defective assertoric status for the composite sentence as a whole. In other words, given that gaps are connected with aberrant assertoric statuses, gappy status should *generally* tend to project in such constructions.

Again, care is required in appreciating this point. That gaps generally project in these ways does not mean that they always will. Two exceptions stand out. First, if it is part of the intended function of the *embedded* construction to conventionally and intentionally produce gaps, then embedding constructions will likelier have conventional rules for coping with such statuses. Second, if the *embedding* construction is specifically designed to be specially responsive to semantic defect, obviously gappy parts shouldn't necessarily lead to gappy wholes. Taken together, these two points allows gap theorists to give characterizations of the presence of gaps that allows for much more nuanced, heterogeneous treatments of gappy projection. Let me give some examples of how they could fruitfully be exploited.

The gap theorist can exploit the first point by giving special projective treatment to gaps with special sources. For example, if assertions of indicative conditionals are gappy at worlds where their antecedents are false, such gaps are arguably conventionally and intentionally produced as part of such constructions in a special way. Perhaps, for example, gaps accrue to indicative conditionals owing to a semantic function akin to provisional supposition, so that indicative conditionals provisionally sort worlds where their antecedent is true. If so, the gap theorist can, in a principled way, allow that gaps owing to false antecedents of indicative conditionals tend not to project over conjunction, even if gaps owing to other constructions do. This move is arguably necessary to explain why, for example, "if p, q and if not p, r" generally exhibits (u)-like status at *no* worlds.

Second, the gap theorist can exploit the second point by hypothesizing the existence of special operators or connectives which are specifically designed to interact with gaps from certain sources. Again indicative conditionals are a good candidate for such treatment, since the move would facilitate the use of a trivalent semantics to capture the relation between the probabilities of indicative conditionals and conditional probabilities, without being committed to probability operators pervasively interacting with gaps.[27] In a much different context, Shaw (forthcoming) argues that gaps owing to the presence of semantic anomaly contribute positively to the semantics of quantified constructions, whereas gaps owing to other constructions need not have any such effects. Finally, and most obviously, there is the issue of negation. Many have noted that

[27]The idea of using a trivalent semantics to capture such relationships goes back as far as de Finetti (1935). von Fintel (2007) suggests using the proposal of Belnap (1970) to the same effect. See also, Rothschild (2014), who flags the need to distinguish the form of trivalence which is used to capture the relevant relationships from other forms of trivalence.

constructions that may call out for gappy treatment can still sometimes be felicitously negated. One way to deal with the phenomenon, if it is indeed genuine, is to insist that we have a metalinguistic use of negation as delineated in Horn (1985). But another reaction is simply to concede the existence of a form of 'exclusion' negation that felicitously interacts with gaps: the gap theorist has nothing to fear from the presence of such an operator precisely because she can lean on the distinction between compositional and assertoric status to preserve the presence of interesting gaps.

In sum: Gaps tend to project. But where projection occurs, it depends on much more than simple gappy status. In this way, our account of the source of gaps actually turns the Dummettian table in the gap-theorist's favor. The distinction between compositional and assertoric status is one the gap theorist can and should *exploit*. This allows her to marshal projection behavior in much more sophisticated ways in defending the generation of gaps by particular linguistic constructions.

Finally, how do gaps influence our logical theories? The fact that gaps are connected with assertoric defects means that transitions from truths (or other 'designated' logical values) to gaps will generally not count as good or acceptable ones in our logics, regardless of how we fill out the details of logical theory and its applications. But exactly how this plays out will depend on our construal of logic, so let me quickly sketch my preferred conception of how gaps complicate our logics.

One construal of logic, that I stipulate as my concern here, is as a contribution to the study of inference. Inferences are transitions between acceptance states (belief, supposition, imagination, etc.)—transitions which are governed by one or more standards of 'goodness'. One way in which an inference is good is by being deductively valid. And it is necessary condition for an inferential transition to be deductively valid that it preserve designated values, including truth.

Thus, logic is in part concerned with the truth-conditional status of mental content that helps mediate virtuous inferential transitions between mental states that bear such content. A key way of studying the relevant truth-conditional status of content is by studying the language that expresses it. The compositional structure of language enables the identification of privileged 'logical' vocabulary that make regular contributions to truth-conditional status of assertoric content. By tracking these contributions, we can develop theories that track truth-preservation in virtue of logical form, and thereby identify a particularly well-behaved, often 'calculable', set of content transitions conducive to good inference.

Now, given what I've said in §4, we can see where gaps will complicate this picture. Gappy status is a semantic defect belonging to language essentially. There is no such thing as a gappy mental state, except perhaps derivatively, insofar as a trivalent abstraction can characterize the structure of a mental state vis-à-vis worlds where the abstraction exhibits no gappy behavior. As a result, either mental content never exhibits gaps, or it exhibits gaps, but mental states will only bear such content in virtue of structural features not reflected

by the gappy structure of mental content.

What this means is that if we develop logics in formalized languages that exhibit gappy structure, gaps generally cannot play a role in characterizing aspects of mental states that are the conclusions of inferences. In general, then, *linguistic* transitions from true to gappy contents should not count as tracking possible good inferences.[28] This is not because the linguistic transitions model bad inferences. It is because they won't model inferential transitions at all (and so, *a fortiori*, won't model good ones).

To clarify this point, a comparison with a related, stronger form of semantic defect might be helpful. Gaps on my view will generally play a role in logical theory very similar to statuses that track *propositional expression failure*. If a sentence Q fails to express a proposition (perhaps in context) altogether, then a logical theory that admits Q among its well-formed sentences should assign it a value that ensures that P never entails Q for any P. This is not because transitions from believing that P to believing that Q are genuine inferences that fail to meet standards on inferential goodness. Rather, because Q doesn't express any proposition, it's not possible to believe that Q in the first place.

Gaps, on my view, tend to behave roughly like 'local' expression failures. They are failures to express how mental states relate to an individual world. Although this needn't involve complete propositional expression failure, such gaps will have similar status in our logical theories: generally, they will be inference-blocking, because they will mark places where inferential transitions are not possible.

At least, this is one way gaps will complicate logical theories on my view. Logics can be construed along other lines than I have here, but the foregoing discussion should help reveal an important way in which gaps will be inference blocking on one relatively standard picture of logical theorizing.

This concludes the argument of this section, and therewith the argument of the paper. Let me recapitulate my proposal.

I've suggested that we treat truth-value gaps as the products of acts of creating information partitions, in particular the result of creating such partitions in an incomplete way. Knowingly producing an assertion that is gappy at actuality, in this sense, is *ipso facto* to fail to assert properly, insofar as one strives to provide information while guided by actuality. Otherwise, the upshot of producing an assertion exhibiting gaps generally depends on much more than its truth-conditional status. The sources of such incomplete partitions can be intentional, or accidental, purely linguistic, or trace to features of context. And depending on these sources, and their interactions with speaker and listener expectations, and the epistemic situation of the asserter, gaps may have completely different kinds of effects in communication: infelicity, confusion, communicative breakdown, accommodation, rectification, or none of these. Nor do gaps have

[28] An important exception would be any gappy abstractions one could believe without one's mental state ruling out the gappy worlds. In this case gaps will behave more like designated values. Again, the key instance of this exception could be given by indicative conditionals. The inference from *not p or q* to *if p then q* seems fine, for example (so long as one does not know $\neg p$).

a single kind of projective or inferential behavior, though there are grounds to think they will generally have an infectious and inference-blocking character. Gaps do not characterize a structural feature of a mental state, though abstract gappy 'propositions' may still be usable in attitude reports to characterize mental states, and so perhaps stand in the mental content role. Whether they are naturally able to do this likely turns on empirical questions about the semantics of attitude reports.

This framework for understanding gaps skirts foundational challenges against gap-theories, and bends them to its advantage. Dummett claimed that there were insurmountable obstacles to understanding gaps as assertoric, instead of merely compositional, statuses. But the foregoing view not only construes gaps as influencing characteristic assertoric effects, but exploits the distinction between assertoric content and compositional semantic value. This allows gap theorists to wield projective and inferential behavior in much more complex ways in defending their theories. Gap theories need this flexibility if they are to be applied to the wide range of constructions that they historically have been, as any gaps present in this range of constructions apparently exhibit quite heterogeneous compositional and inference-regulating behavior. In §2, I noted that gap theorists need to explain how indeterminacies in linguistic use are sufficient for creating gaps, without being necessary, and that indeterminacies can lead to gaps even if we can clearly demarcate the assertoric effects that result from such indeterminacies. The foregoing view explains all this as well. The view may do all this while incurring some costs. The inability of gaps to characterize the structure of mental states may be among them. I myself suspect that on close examination even this feature actually turns out to be a *desideratum* placed on gap theories, though I won't be able to explore this idea here.

Of course, one very important question remains: do any constructions exhibit gaps in my sense? I've gestured briefly at some reasons for thinking that gaps are indeed present in natural language, especially among the constructions that have historically been treated as generating them. But there is no hope of defending this claim here, even for a single linguistic construction. The account here is merely meant to give hope that the utility of gaps in application to many philosophical, linguistic, and logical problems can be safeguarded. But ultimately these applications need to be assessed or reassessed on a case by case basis, letting empirical considerations be our guide.

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